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Dr.Joshua Lederberg
The University of Wisconsin
Madison 6,Wisconsin

Dear Dr.Lederberg:

Many thanks for your kind letter. We are sending you our reprints under separate cover.

I was reading with great interest some of your ingenious papers. Recently we started to apply some methods used in microbial genetics to some problems that concern tumor cell populations. Our experience with 42 mouse tumors has shown that only some of them (12, on the whole) would grow as typical "ascites tumors". All 12 ascites tumors belong to the very rapidly growing and highly anaplastic category. The rest of the tumors that grew only in the solid form, comprises both rapidly growing and anaplastic and, to the greater part, more slowly growing and comparatively better differentiated forms. We are trying to learn more about the conditions that enable a tumor to grow in a fluid as dissociated free cells. It seems that such a capacity, if once obtained,is a characteristic that is permanent to the tumor cell lineage and is independent of the actual form in which the tumor is maintained routinely (solid or ascites). Jack Schultz suggested to me some years ago that we may be dealing with mutants. We try to follow Law in applying the fluctuation test of Luria and Delbrück for tumor cell populations for deciding this question. At the same time we try to make independent comparisons on the different cell populations involved with respect to other characters than capacity for growth as ascites tumors, to establish possible other correlations.

As to the problem concerning the effect of chromatin fractions, your suggestion to use DNAse may prove to be very valuable indeed. We are doing some experiments presently where we treat established tumors with various, definitely noncellular fractions that have been isolated from other tumors which differ from the tumor on which the fractions are tested in various quantitative respects. If there could exist something analogous to the bacterial transforming principles in case of tumors, the probability of demonstrating it might be higher if we look for small but definite changes than if we try to transform a normal to a tumor cell -a process that may involve a great number of steps.

I was very much interested in the abstract of your paper about the filterable agent with transforming activity. I should very much appreciate a reprint of the full paper when available, as well as any other reprints of your previous work that you could spare.

Most sincerely yours,

George Klein